

REMARKS ON THE LINNEAN SPECIES OF NEPA
AND LACCOTREPHEs (HEMIPTERA:
NEPIDAE).

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In his "Systema Naturae," ed. 10, 1758, Linné described seven species of the genus *Nepa*, of which four belong to *Nepa* or *Laccotrephe*s of the present taxonomy. These are:

1. *Nepa rubra* Linné.
2. *Nepa fusca* Linné.
3. *Nepa atra* Linné.
4. *Nepa cinerea* Linné.

The types of these species, excepting *Nepa atra*, are now preserved still in good condition in the Linnean collection in the Zoological Institute of the University in Uppsala, and they were carefully examined by me when I visited the institute. To my great surprise, at that time I have found a noteworthy fact, that *Nepa rubra* Linné is not a *Laccotrephe*s-species, as it has hitherto been treated by all the Hemipterologists, but is identical with the common palaeartic species, *Nepa cinerea* Linné.

The first three species of them have hitherto been treated as *Laccotrephe*s-species, and, in fact, "*Laccotrephe*s *ruber*" has been taken as the common Oriental species, whose abdomen is red on the dorsal surface.

Linné described *Nepa rubra* as follows (Systema Naturae, ed. 10, p. 440, 1758):

"*N. fusca*, abdomine supra alarumque nervis rubris. M. L. U.

"*Habitat in Calidis regionibus.*"

And afterwards (Museum Ludovicae Ulricae, p. 165, 1764):

"*Habitat . . .*

"*Corpus facie nostratis Nepae cinereae. Thorax sordidus, parum rugosus, antice et postice emarginatus. Elytra fusco-sordida. Alae albae vasis majoribus sanguineis. Abdomen a tergo sanguineum. Cauda in quibusdam seta duplici.*"

From these descriptions, it is quite sure that the venation of the hind wings is mostly blood-red in this species. This character occurs in *Nepa cinerea* Linné, but *not* in the so-called "*Laccotrephe*s *ruber*." The type of this species is a female (length of body 22 mm., the same of caudal appendages 12.5 mm.), and labelled

by Linné¹ as "rubra, Mus. Gust. Adolphi," which can never be a *Laccotrephes* as is seen from the photograph.

The so-called "*Laccotrephes ruber*" is about 30–35 mm. in length, and also does not agree with the character given by Linné, that "corpus facie nostratis *Nepae cinereae*," because, if *Nepa rubra* were about as large as "*Laccotrephes ruber*," Linné might have surely given a remark on this character in his second, more detailed description (Mus. Ludv. Ulr.), as he did in the case of *Nepa fusca* in the same work, i.e., he described the character of the latter, which is of the same size with "*Laccotrephes ruber*," as "corpus ut in congeneribus, sed nostratae duplo majus."

Concerning the habitat of *Nepa rubra*, Linné described at first, "Habitat in Calidus regionibus," but in his second, more detailed one no statement was given. The type is not at all distinguishable from the common *Nepa cinerea*, which is known to be widely distributed throughout the palaeartic region, and southwardly so far as North Africa, and it is not at all unjust to consider, that the distributive extent of this species may be partly included in his "Calidus regionibus."

The types of *Nepa cinerea* are a single male (length of body 21.5 mm., the same of caudal appendages 8 mm.) and a single female (length of body 23 mm., the same of caudal appendages 11.5 mm.) and separated from the other types of the genus as the "species non in Linnei Mus. L. Ulr. descripta." The presumable cause why Linné described the specimens of a single species as different ones is that, in the unique type of *Nepa rubra*, the elytra and wings are expanded and the conspicuous coloration of the dorsal surface of abdomen, and of the venation of the hind wings are well observable, while in the types of *Nepa cinerea*, they are not expanded and the characters in question would have not been examined by Linné.

As *Nepa rubra* Linné precedes *Nepa cinerea* Linné in *Systema Naturae*, ed. 10, p. 440, the common palaeartic species should be named as *rubra* instead of *cinerea*, although the name was used by him also in his "Fauna Suecica," p. 245, 1761, and afterwards has come in general use; and also it is indeed very regrettable that such a name, almost popularized, should be changed.

Thus *Nepa rubra* Linné, 1758 et 1764, is identical with *Nepa cinerea* Linné, 1758 et 1761, but afterwards Fabricius has, for the first time, treated a *Laccotrephes* from Tranquebar, South India, under the name "*rubra*" (*Entom. Syst.*, vol. 4, p. 62, 1794, and *Syst. Rhyng.*, p. 107, 1803), which had earlier been described

and figured by Stoll as "de zwarte Tranquebarsche Water-scorpioen" or "le scorpion aquatique noir de Tranquebar" (Natuurlyke en naar 't Leeven Naauwkeurig gekleurde Aubeel-dingen en Beschryvingen der Cicaden en Wantzen, Amsterdam, Wantzen, p. 35, pl. 7, fig. "V," 1780), and afterwards followed by many authors. Ferrari, however, described this species as new under the name "*Nepa Kohlii*" (Ann. Naturhist. Hofmus., Bd. 3, pp. 173, 180, 1888), which should be adopted as the name of this oriental species.

The types of *Nepa fusca* Linné are two females (length of body 31 and 33 mm., the same of caudal appendages 22.5 + x and 21 + x mm. respectively (in both the specimens the apices of the caudal appendages are broken). As I have noted already, Linné described in his second description (Mus. Lud. Ulr., p. 166, 1764), that "corpus ut congeneribus, sed nostratae duplo majus." Fabricius thrice described "*fusca*," i.e.,

1. (Syst. Ent., p. 692, 1775):

"3 N. ecaudata, scutello rugoso, alis niveis. Linn. Syst. Nat.

11. 713. 3. Mus. Lud. Ulr. 166.

"Habitat in America.

"Duplo major N. cinerea: tota fusca, solis alis albis."

2. (Ent. Syst., vol. 4, p. 62, 1794):

"4. N. cauda biseta, scutello rugoso, alis niveis. Linn. Hist.

Nat. 2. 713. 3. Mus. Lud. Ulr. 166. Stoll. Cimic. 2. tab. 1. fig. 1.

"Habitat in Indiae orientalis aquis.

"Duplo major N. cinerea, tota fusca alis folis albis. Cauda longitudine corporis." and then,

3. (Syst. Rhyng., p. 107, 1803):

"4. N. cauda biseta, scutello rugoso, alis niveis. Ent. Syst.

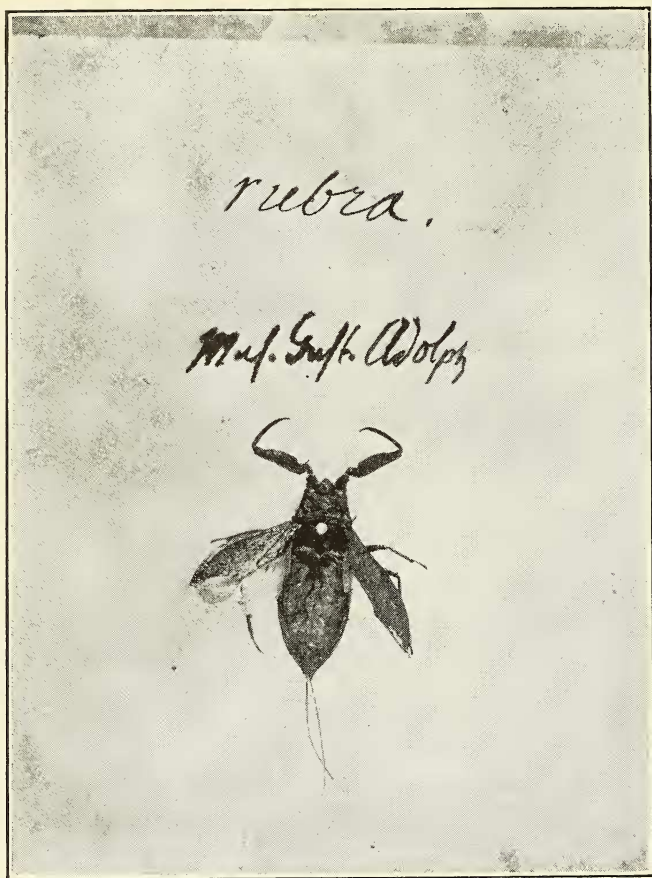
4. 62. 4.*

"*Nepa fusca*. Linn. Syst. Nat. 2. 713. 3. Mus. Lud. Ulr. 166.

"Habitat in India orientalis aquis.

"Minor N. cinerea."

According to these descriptions, it is quite sure that all the three must be different species from one another. As the insect is "ecaudata," the first may be a Belostomatid, and judging from its description and habitat, it may be possible that the species is *Benacus griseus* (Say). The second and third are, however,



EXPLANATION OF FIGURE.¹

The type of *Nepa rubra* Linné and its label (photo by G. Gustafson). $\times \frac{5}{4}$

with no doubt, *Laccotrepes*-species, but the former is "duplo major *N. cinerea*," while the latter is, on the contrary, "minor *N. cinerea*." It is almost sure that the second one is identical with the Linnean species according to the descriptions, notwithstanding Fabricius referred the species to the Stoll's figure (op. cit.,

¹ Dr. G. Gustafson, of the Zoological Institute of the University in Uppsala, wrote to me that the label of the type seems not to be written by Linné himself, but a later transcription.

pl. 1, fig. "I"), which shows a Belostomatid. The third may probably be *Laccotrephes grisea* (Guér) or another allied species, as it is smaller than "*Nepa cinerea*."

The foregoing discussions on three Linnean species of *Nepa* and *Laccotrephes* are summarized as follows:

1. *Nepa rubra* Linné, 1758 et 1764.
= *Nepa cinerea* Linné, 1758 et 1761.
(The common palaeartic species.)
2. *Laccotrephes fuscus* (Linné), 1758 et 1764, *Nepa*.
= *Nepa fusca* Fabricius, 1794.
± *Nepa fusca* Fabricius, 1775.
± *Nepa fusca* Fabricius, 1803.
(Oriental.)
3. *Nepa cinerea* Linné, 1758 et 1761.
= A synonym of *Nepa rubra* Linné, 1758 et 1764.

The oriental species hitherto named as "*Laccotrephes ruber*" by many authors is:

- Laccotrephes Kohlii* (Ferrari), 1888, *Nepa*.
- = *Nepa rubra* Fabricius, 1794 et 1803.
- = *Laccotrephes ruber* Mayr, Stål, Montandon, Distant, etc.
- ± *Nepa rubra* Linné, 1758 et 1764.

Before closing, I acknowledge my great indebtedness to Dr. Sixten Bock and to Dr. Gunnar Gustafson, of the Zoological Institute of the University in Uppsala, for their courtesy in preparing and forwarding the photograph of the type of *Nepa rubra*, which is shown in the present paper.

John Barton Angleman, for many years an active member of the Newark Entomological Society, died at the Perth Amboy Hospital, September 4, 1926, at the age of 76. He was an ardent collector of Macro-Lepidoptera, doing most of his field work in the vicinity of Newark, N. J. He furnished numerous records for the New Jersey State List of Insects.—G. P. E.